

### **Automated Stream Data Notes: July – Dec 2008**

Six sites were operated to varying degrees in 2008. Five are currently in operation and these water quality sondes will continue to monitor the streams as long as the ice thickness does not become a threat to their integrity. Funding from the City of Duluth and from Minnesota's Lake Superior Coastal Program will allow maintenance to be performed on a more regular basis.

#### Amity Creek:

The bridge reconstruction over Amity Creek was finally completed this summer and the water quality sensor sonde was re-installed on July 23, 2008. It has been fully functional though it was buried under sediment several times during high flow rain events this summer. This may continue to be an issue until the river adjusts to the new bridge and the banks re-vegetate from the bridge replacement activities that have caused some erosion. The MPCA adjusted some of the settings on the data logger this fall in a power saving effort and the data is not being fully reported at present but will be before too long.

#### Chester Creek:

This site has been (and continues to be) fully functional, though this sonde is in the greatest danger of freezing to the bottom, an issue in previous years. The above-average snow cover this year has thus far prevented significant ice formation on the Chester and the other streams as well.

#### Tischer Creek:

This site has also been completely functional although a battery failure in early December resulted in short periods of lost data.

#### Kingsbury Creek:

This site suffered from a lack of attention in the months of October to December due to last year's funding interruption. The conductivity sensor apparently failed and data was lost for this period. The sonde will be removed in January but ice conditions will determine if it is possible to reinstall the unit this winter or wait until spring.

#### Miller Creek (@ Lake Superior College):

This site has been plagued with issues since summer and continues to have problems. The equipment was purchased by Lake Superior College was installed by NRR-UMD this summer but has had communication issues between the sensors and the datalogger, communication issues between the datalogger and the modem, and communication

issues between the modem and the NRRI home base server. It is a difficult place to monitor the stream due to its location in a gorge with relatively poor solar exposure and intermittent cell phone signal. Most issues have been resolved though the data must be collected manually during the cold months to prevent excess battery drainage from calling the modem. Routine, frequent maintenance to clean and calibrate the sensors, and assess data quality will require additional resources in the future.

#### Poplar River:

Poplar River data collection terminated 10/7/08. Previously we reported that effective 8/26/2008, our Poplar River real-time data station was terminated due to changes in hydrologic monitoring equipment and siting determined by MDNR and MPCA, the state agencies responsible for stream monitoring. Automated hydrologic data is now collected by the Minnesota DNR at a site downstream from Highway 61 and closer to the mouth of the stream at Lake Superior (Station ID: 01063003) than was the MPCA monitoring site upstream from Highway 61 that was operated since 2002. We had operated our real-time water quality sensors at this site since 2006 but there is presently no support for continuing these data or their transmission to the *LakeSuperiorStreams.org* website. We continued to log the water quality sensor data from Aug-Oct although the stage height (flow) monitoring was terminated by MPCA in August. Unfortunately there has been no funding for manually collected water chemistry sampling for this site although this will hopefully resume in the future in association with the Poplar River TMDL study. In concert with a different study of North Shore streams that did not include the Poplar River, NRRI-UMD staff were able to collect and freeze water from the original site on a number of dates in 2008, and perform a limited number of field measurements.